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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	**Confirmation No. 6255**
Michael Roydon PUZEY	:	Docket No. 2003_1353A
Serial No. 10/671,621	:	Group Art Unit 3611
Filed September 29, 2003	:	THE COMMISSIONER IS AUTHORIZED TO CHARGE ANY DEFICIENCY IN THE FEES FOR THIS PAPER TO DEPOSIT ACCOUNT NO. 23-0975
VEHICLE SUPPORT ASSEMBLY		

CLAIM OF PRIORITY UNDER 35 USC 119

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant in the above-entitled application hereby claims the date of priority under the International Convention of South African Patent Application No. 2002/9859, filed December 5, 2002, as acknowledged in the Declaration of this application.

A certified copy of said South African Patent Application is submitted herewith.

Respectfully submitted,

Michael Roydon PUZEY

By _____
Michael S. Huppert
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December 23, 2003

Sertifikaat
PATENTKANTOOR
REPUBLIC OF SOUTH AFRICA

Certificate
PATENT OFFICE
REPUBLIEK VAN SUID-AFRIKA

DEPARTEMENT VAN HANDEL
EN NYWERHEID

DEPARTMENT OF TRADE AND
INDUSTRY

Hiermee word gesertifiseer dat
This is to certify that

the documents annexed hereto are true copies of:

Application forms P.1, P.2 and provisional specification of Patent No. 2002/9859 as originally filed in the Republic of South Africa on **5 December 2002** and in the name of **PUZEY, MICHAEL ROYDON**, for an invention entitled: **"VEHICLE"**.

Geteken te PRETORIA in die Republiek van Suid-Afrika, hierdie **25th** dag van **September 2003**
Signed at in the Republic of South Africa, this day of

Registrateur van Patente
Registrar of Patents

McCALLUM, RADEMEYER & FREIMOND
Ref: P.19763

REVENUE INKOMSTE 5.12.02

FORM P1
REPUBLIEK VAN SUID-AFRIKA
REVENUE R 006.00 INKOMSTE
FTR 074
REPUBLIC OF SOUTH AFRICA

REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978

APPLICATION FOR A PATENT AND ACKNOWLEDGEMENT OF RECEIPT

(Section 30(1) – Regulation 22)

The grant of a patent is hereby requested by the undermentioned applicant on the basis of the present application filed in duplicate

Revenue Stamps or Revenue Banking Machine Impression

REGISTRAR OF PATENTS, DESIGNS, TRADE MARKS AND COPYRIGHT
2002 -12- 10
OFFICIAL DATE STAMP
REGISTRATEUR VAN PATENTE, MODELLE HANDELSMERKE EN OUTEURSREG

OFFICIAL APPLICATION NO.

21	01	2002/9859

FULL NAME(S) OF APPLICANT(S)

71	PUZEY, Michael Roydon

ADDRESS(ES) OF APPLICANT(S)

7 Hans Schoeman, Malanshof, Randburg

TITLE OF INVENTION

VEHICLE

Priority is claimed as set out on the accompanying Form P2.

The earliest priority claimed is: **NONE**

This application is a patent of addition to Patent Application No.	21	01	
This application is a fresh application in terms of section 37 and based on Application No.	21	01	

THIS APPLICATION IS ACCOMPANIED BY:

☒	1	A single copy of a provisional specification of ...11... pages		
☐	2	Two copies of a complete specification of ..... pages		
☒	3	...3 ... Sheets of Informal Drawings		
☐	4	..... Sheets of Formal Drawings		
☐	5	Publication particulars and abstract (Form P8 in duplicate)		
☐	6	A copy of Figure ..... of drawings (if any) for the abstract		
☐	7	Assignment of Invention		
☐	8	Certified priority document(s) Number(s)		
☐	9	Translation of priority document(s)		
☐	10	An assignment of priority rights		
☐	11	A copy of the Form P2 and the specification of SA Patent Application	21	01
☒	12	A declaration and power of attorney on Form P3		
☐	13	Request for ante-dating on Form P4		
☐	14	Request for classification on Form P9		
☒	15	Form P2 in duplicate		

74	ADDRESS FOR SERVICE: McCALLUM, RADEMEYER & FREIMOND, Maclyn House, June Avenue, Bordeaux P.O. Box 1130, Randburg, 2125

Dated 5 December 2002

.....
McCALLUM, RADEMEYER & FREIMOND
PATENT AGENTS FOR APPLICANT(S)

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FORM P2

MRF Ref:P.19763

REPUBLIC OF SOUTH AFRICA — PATENTS ACT, 1978

REGISTRAR OF PATENTS

Official Application No.	Lodging date: Provisional	Acceptance date:
21 (91) 2002/9859	22 5 December 2002	47
International classification	Lodging date: Complete	Granted date:
51	23	

Full name(s) of applicant(s)/Patentee(s)

71 PUZEY, Michael Roydon

Applicant(s) substituted:	Date Registered:
71	

Assignee(s):	Date Registered:
71	

Full name(s) of inventor(s)

72 PUZEY, Michael Roydon

Priority claimed	Country		Number		Date	
Note:	33	NONE	31	NONE	32	NONE
Use International	33		31		32	
Abbreviation for Country	33		31		32	

Title of Invention:

54 VEHICLE

Address of applicant(s)/patentee(s)

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Patent of Addition to Patent No.:	Date of any change:	
61		
Fresh Application based on:	Date of any change:	

McCALLUM, RADEMEYER & FREIMOND
Ref: P.19763

FORM P6

REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978

PROVISIONAL SPECIFICATION

(Section 30(1) – Regulation 27)

OFFICIAL APPLICATION NO		LODGING DATE	
21	01 2002/9859	22	5 December 2002

FULL NAME(S) OF APPLICANT(S)

71	PUZEY, Michael Roydon

FULL NAME(S) OF INVENTOR(S)

72	PUZEY, Michael Roydon

TITLE OF INVENTION

54	VEHICLE

BACKGROUND OF THE INVENTION

This invention relates generally to a vehicle. As used herein the word "vehicle" includes a scooter, ie. a two wheeled device, a vehicle which may have three or four wheels, and a non-wheeled vehicle such as a snowboard.

The invention is described hereinafter with reference to a two wheeled vehicle but this is only by way of example. The principles of the invention can be used with equal effect with vehicles which have three or four wheels, and with non-wheeled vehicles eg. a motorized snowboard or snow bike .

SUMMARY OF INVENTION

The invention provides in the first instance a support assembly for a ground-engaging component of a vehicle which includes a base section, a column which is mounted for pivotal movement relatively to the base section between an operative position and a storage position, a locking assembly for holding the column, according to requirement, in the operative position and in the storage position, and a brake pedal which is mounted for pivotal movement relatively to the base section, the brake pedal being pivotally movable through a first arc to control braking of the vehicle and through a second arc to release the locking mechanism and thereby allow the column to be moved between the operative and storage positions.

The base section may form a fuel tank for an engine of the vehicle, or a storage compartment for batteries used to power a motor of the vehicle.

The ground-engaging component may be a wheel, eg. a front wheel, of the vehicle or a ski or board or similar device eg. of a snowboard or snow ski.

According to a second aspect of the invention there is provided a drive system for a vehicle which is adapted to be connected to a rotatable output shaft of a prime mover, the drive system including first and second drive devices with respective drive inputs connected to the output shaft and respective drive outputs connected to a final drive system, control means for placing the second drive device in an operative mode in which power is transferred from the output shaft to the final drive system by the second drive device or in an inoperative mode in which power is not transferred to the final drive system, and wherein the first drive device transfers power from the output shaft to the final drive system only when the second drive device is in the inoperative mode.

The control means may include a mechanism which is movable to engage the second drive device with, or to disengage the second drive device from, a drive shaft on which the second drive device is mounted. The mechanism may be manually movable or it may be moved automatically eg. with centrifugal action when the second drive device rotates at a predetermined speed on the drive shaft.

The first drive output is preferably connected to the drive shaft by means of a one-way system such as a ratchet or similar device.

The final drive system may cause rotation of one or more wheels of the vehicle, or any other impelling device which causes movement of the vehicle.

The one-way system is used so that, although the final drive system causes movement of the impelling device of the vehicle, transfer of power does not take place in the reverse direction in the sense that when the impelling device of the vehicle is caused to move by external means power is not transferred from the impelling device to the drive system.

The first and second drive devices may include rotatable output components which are concentric.

Each drive device may include a pulley and belt system or a gear and chain system.

A cam may be provided for simultaneously adjusting the tension in each of the first and second drive devices. A similar technique may be used to adjust the tension in the final drive system.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is further described by way of example with reference to the accompanying drawings in which:

Figure 1 depicts from the side a portion of a vehicle, in this case, a two wheeled scooter, which includes a support assembly according to the invention;

Figure 2 is a perspective view on a different scale of the support assembly of Figure 1;

Figure 3 is a perspective view of operative components of a drive system for the vehicle; and

Figure 4 is a perspective view of some of the components shown in Figure 3.

DESCRIPTION OF PREFERRED EMBODIMENTS

Figure 1 of the accompanying drawings illustrates a support assembly 10 for use with a front wheel of a scooter. The scooter construction is not shown in detail for most aspects thereof are known in the art.

The support assembly includes a base section 12 which, at one end, has an upstanding tubular member 14 to which is attached a seat, not shown. Structural plates 18 extend to the rear of the base section and are used for supporting a rear wheel of the scooter, a motor and a drive mechanism which transfers power from the motor to the rear wheel.

At its front end the base section 12 has an inclined column 20 mounted to it. The column is pivotally movable, to a limited extent, about a pivot point 22. At its upper end the column has a tubular member 24 to which is attached a front wheel of the scooter and handlebars. These components are not shown.

At its lower end the column 20 has a curved tube 26 which is used as an anti-rollover component and as a handle for carrying the scooter when it is in a folded configuration.

A brake pedal 28 which includes a portion 30 which is engageable with a foot of a user, not shown, and which is mounted to a lever 32, is pivotally movable, to a limited extent, about a pivot point 34. A spring 36 which is fixed to a component (not shown) extending from the base section 12, projects to a position below the portion 30 and, in the illustrated position, abuts a surface of a shaped plate 40 which is welded to one side of the column 20. A similar plate is welded to an opposing side of the column.

A downwardly facing curved surface 42 of the plate 40 is formed with lower and upper recessed formations 44 and 46 respectively. A catch plate 50 is mounted for pivotal movement about the point 34. The catch includes an upwardly extending section 52 which abuts a front edge of the lever 32. A pin 54 is mounted, and projects transversely, to the catch plate 50.

A lower end of the lever 32, below the pivot point 34, has a number of slots 56. A brake cable 58 is engaged with a selected slot. The cable extends to a braking arrangement on a rear wheel of the vehicle, not shown.

If a user's foot is pressed on the pedal portion 30 then the lever 32 is pivotally movable, about the point 34, through a limited arc in the direction of an arrow 60. In so doing the cable is tensioned and the rear wheel brake is applied to a greater or lesser extent, depending on the degree to which the pedal is depressed. The catch plate 50 and the pin 54 remain in their respective illustrated positions with the lever 34 moving away from the plate 50. When

the pedal is released the spring 36 acts to restore the pedal to a neutral position.

If the support assembly is to be folded, for example if the scooter is to be stored or transported, then the lever 34 is pushed forwardly in a direction which opposes the direction of the arrow 60. The spring 36 is deflected relatively upwardly, as is indicated by an arrowhead 62, and the catch plate 50 is moved about the pivot point 34, downwardly, as is indicated by an arrow 64. This movement results because the section 52 abuts the lever 34. As the catch plate moves downwardly the pin 54 is moved out of engagement with the lower recessed formation 44. The column 20 is no longer held locked in position and consequently can be pivoted about the point 22, in the direction of an arrow 66, to a position at which it more or less overlies the base section 12. Eventually the upper formation 46 is moved into engagement with the pin 54 and the spring 36 then extends causing the lever to move slightly about the point 34 so that the pin 54 is pushed home in the formation 46.

With the support assembly in the folded configuration it is possible for a user to grip the tubular handle 26 and then wheel the scooter along its rear wheel. As explained the front wheel of the scooter is attached by means of a suitable suspension device to the tubular member 24. The tubular handle 26 also provides a ground-engaging member which, together with the rear wheel, stably supports the scooter in the folded mode.

It is pointed out that the base section 12 serves as a structural chassis member which in use accommodates the feet of a user and it also doubles as a fuel tank for the engine of the scooter if it is petrol driven. A nozzle 67 can be provided for filling the tank with fuel. A hole 68 in the tubular member 14 allows fuel to flow from the tank into the member and then to an engine as is indicated by arrows 69. The member 14 acts as a surge arrestor for the liquid fuel in the tank, if the scooter is inclined, and helps to ensure a steady flow of fuel to the engine. On the other hand if the scooter is driven by means of an electric motor then one or more batteries can be mounted in the base section.

The brake pedal can thus be used in the normal manner for the application of a braking force to the scooter, and as a locking device which is movable to keep the front wheel of the scooter in an operative position, or in an inoperative position, according to requirement.

Figures 3 and 4 illustrate a preferred drive system for the rear wheel of the scooter. The drive system is powered by means of a petrol driven engine, or a battery driven motor, not shown, according to requirement. In this instance it is assumed that the scooter is driven by means of a petrol engine which has an output shaft 72 coupled to a centrifugal clutch 74 fixed to a support plate 76 at a rear end of the base section 12 shown in Figure 1.

Two additional support plates 78 and 80 respectively have mounted between them first and secondary pulleys 82 and 84 respectively. The pulley 84 is mounted on a one-way bearing 86 which in turn is connected to a shaft 87

which extends through the secondary pulley to a final drive pulley 88 which is supported by the plate 80. First and second primary drive pulleys 90 and 92 respectively are mounted to an axle which extends from an output side of the centrifugal clutch 74.

The various pulleys are formed with ribs and ribbed drive belts 94 and 96 couple the first and second primary drive pulleys to the first and second secondary drive pulleys respectively. A further belt 98, on the final drive pulley 88, is used to transfer drive to the rear wheel of the vehicle, not shown.

The primary pulleys have slightly different diameters and the secondary pulleys also have slightly different diameters.

A bearing 100 supports the final drive pulley 88.

A cam 102 is mounted between the plate 76 and 78. If the cam is rotated in the direction of an arrow 104 then the axle 87 on which the pulleys 82 and 84 are mounted is moved downwardly and forwardly (relatively to the rear wheel). In so doing the belts 94 and 96, and to a lesser extent the belt 98, are tensioned. If desired a spring could be fixed to the cam to keep it under constant tension to effect automatic tensioning of the belts. A similar cam can be used to give a greater degree of adjustment of the tension of the belt 98.

A counterweight 106 is fixed to the shaft 87 and is guided for sliding movement in a radial sense by a formation 108. A spring, not shown, acts on the counterweight in the direction of an arrow 110 to bias the counterweight

towards the shaft. The counterweight has a curved outer surface 112, and a catch formation 114. The counterweight is located in a recess (not shown) in the pulley 82 although, in Figure 4, it is shown displaced from the pulley for illustrative purposes only. A pin 120, shown in dotted outline in Figure 4, extends into the recess 116 at a peripheral location.

The two pulleys 90 and 92 are constantly driven in unison by the output from the centrifugal clutch. The drive ratio between the pulleys 90 and 82 is higher than the drive ratio between the pulleys 92 and 84. At low speeds the counterweight 102 is close to the axle and the pulley 82 which is driven by the belt 94 rotates freely about the shaft 87 The belt 96 thus transfers drive from the pulley 92 to the pulley 84 and hence to the belt 98 via the pulley 88. When the pulley 82 reaches a predetermined rotational speed the counterweight 102 moves radially outwardly, under centrifugal force, against the action of the spring referred to. The surface 112 initially strikes and moves over the pin 120 and thereafter the pin moves into the catch formation 114, whereupon the shaft 87 is coupled to the pulley 82. The shaft is then driven at a higher speed for a higher drive ratio is obtained from the pulleys 90 and 82. The pulley 82 rotates quicker than the pulley 84 and this is allowed in that lost motion between the pulley 84 and the final drive pulley 88 is accommodated by the one-way bearing 86 which supports the pulley 84.

It is evident therefore that the drive system can be used as a two speed system wherein one speed is selected by the counterweight 106 moving to a

first position and a second speed is selected by the mechanism moving to a second position.

If the scooter is to be pushed, for example if the engine is not functioning, then the one-way bearing allows the rear wheel to "free wheel" without transferring drive to the drive system.

Dated this 5th day of December 2002.

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Patent Agents for the Applicant

P.19763/jes

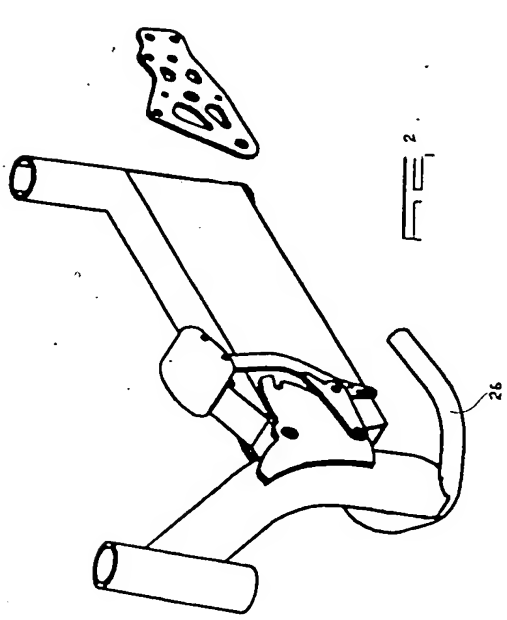

FIG 2

FIG 1

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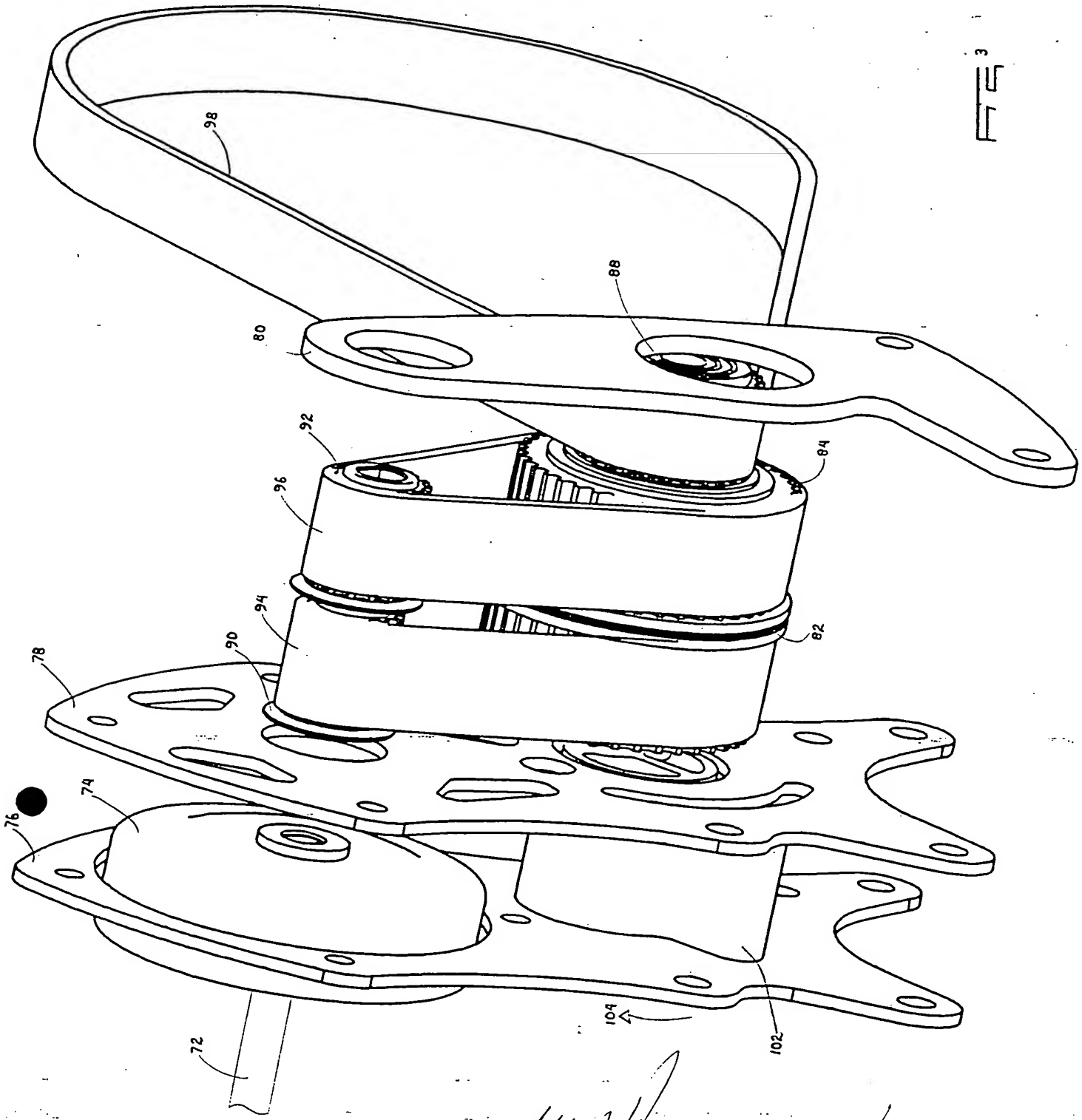
FIG 3



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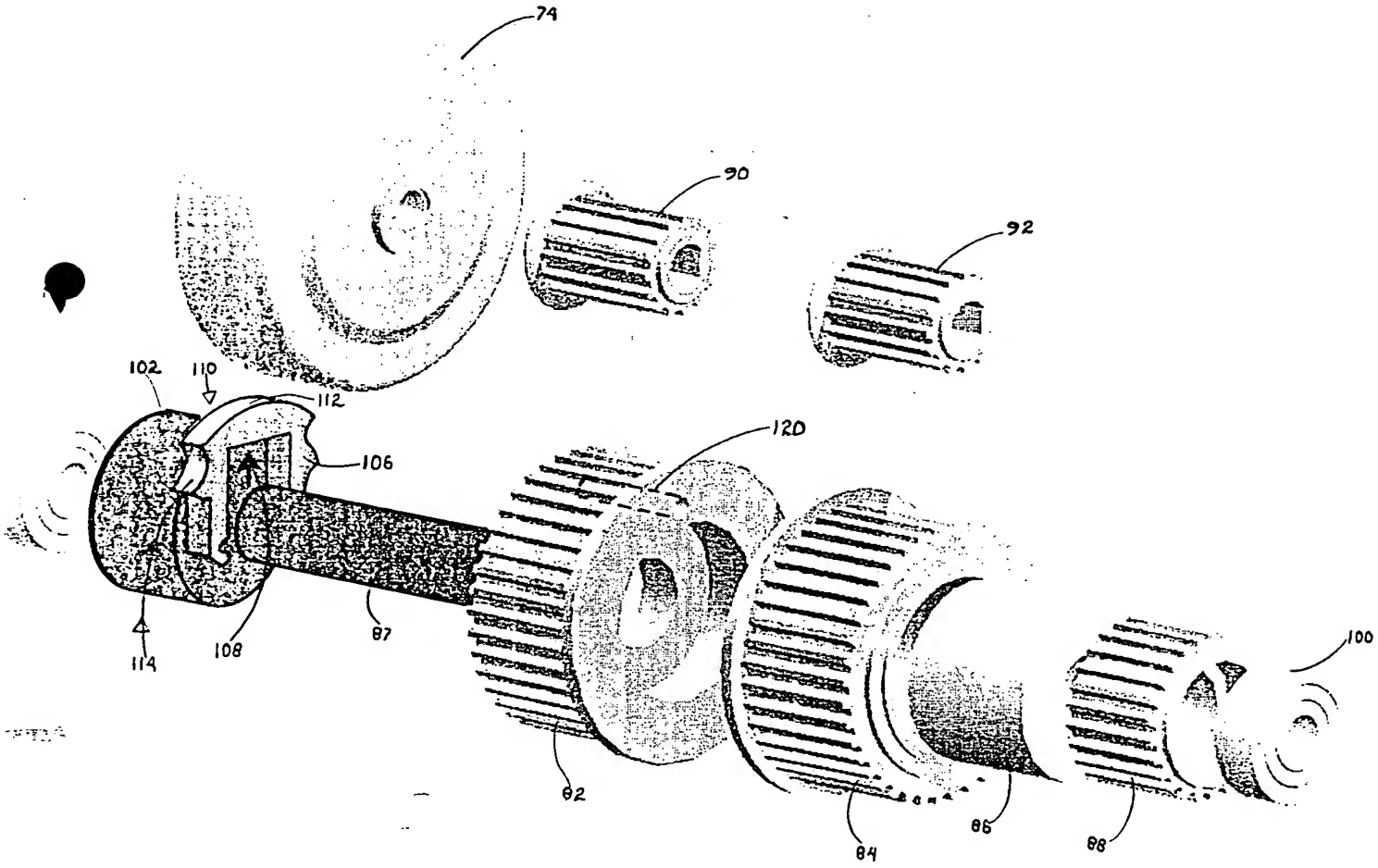

FIG 4

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